Chicago Area Air Quality Monitoring Network and Air Quality Characterization

U.S. EPA, Region 5

Air and Radiation Division

June 2021

Photo: George Washington High School Air Monitors

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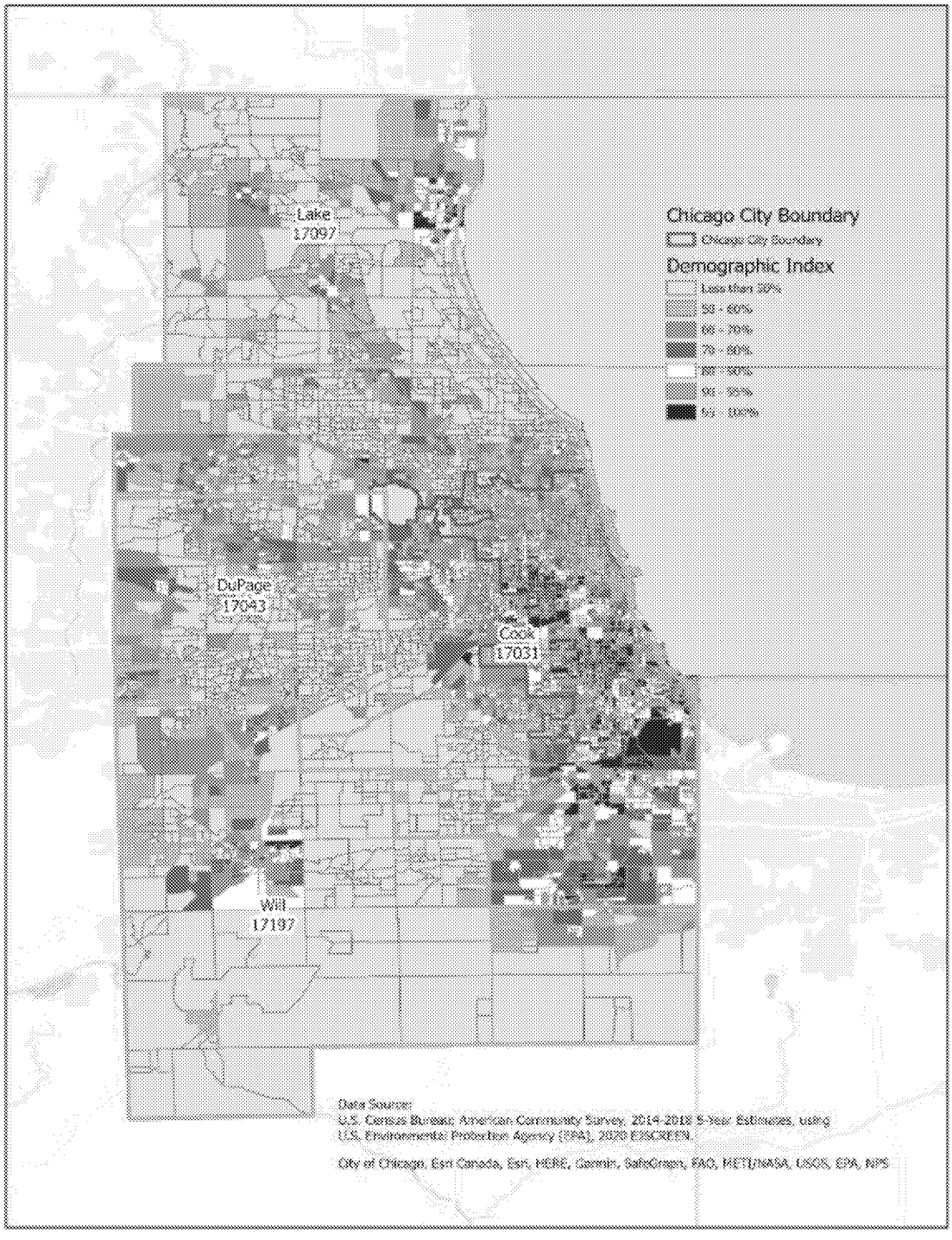
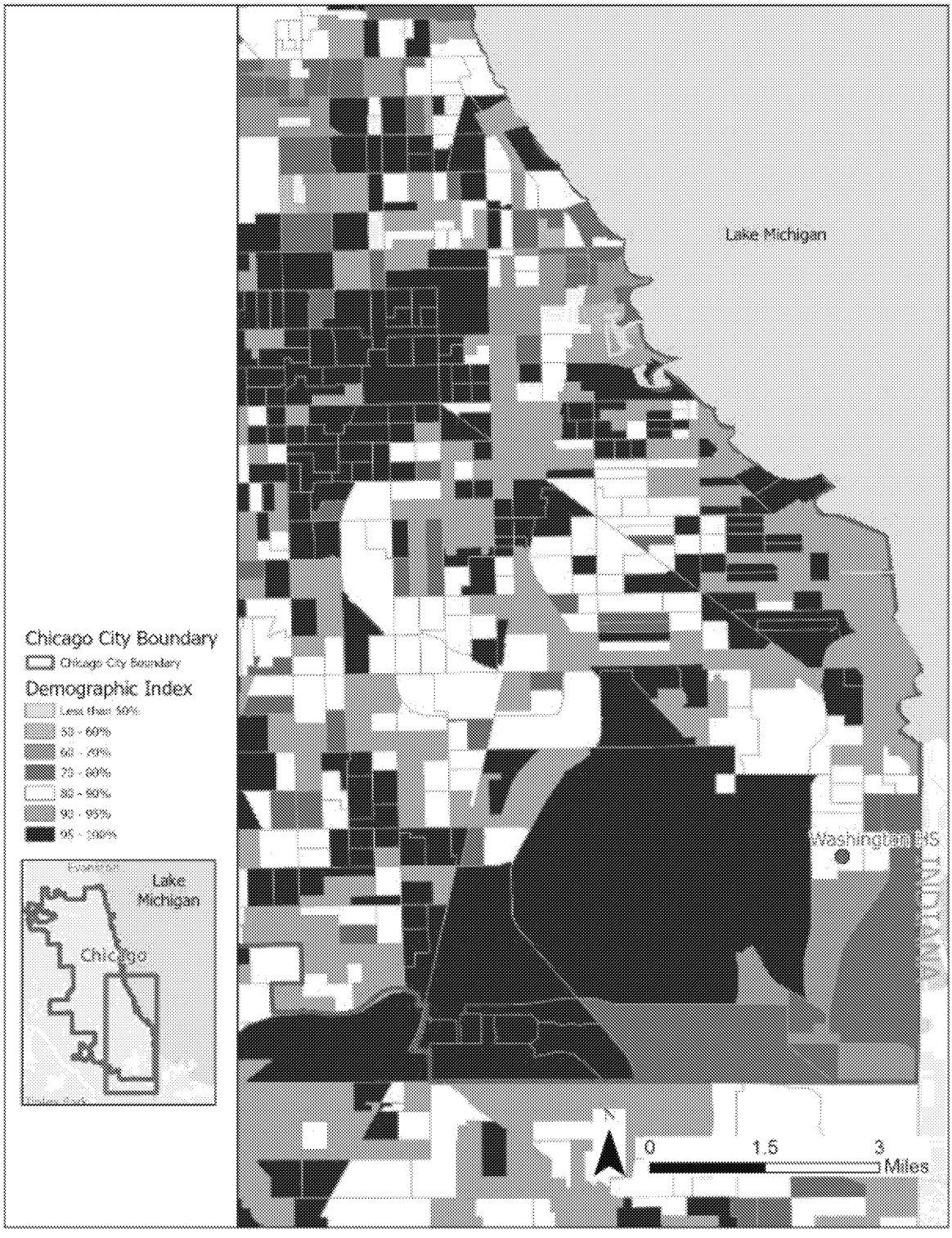
Introduction

This report provides an overview of air quality in Southeast Chicago. It provides background on monitoring requirements under the Clean Air Act and explains how monitoring data are used. With regards to Southeast Chicago, specifically, the report analyzes ambient air monitoring data collected at George Washington High School (3535 East 114th Street) and the nearby South Water Filtration Plant (3300 East Cheltenham Place). Ten and three-year trends are evaluated and compared against standards and other available health benchmarks. Monitoring data are also compared to similar sites across Chicagoland, where available. This analysis is in support of the City of Chicago's Health Impact Assessment, which will consider the aggregate potential health effects of the proposed RMG facility on Southeast Chicago.

Area of Focus

The Southeast Chicago area described in this report is located 13 miles southeast of downtown Chicago, and includes the neighborhoods of Riverdale, East Side, South Deering, Pullman, West Pullman, Hegewisch, Roseland and Calumet Heights. As of the 2010 Census, the approximate population of the area is 406,000 and 92% minority (with 77% Black and 14% Hispanic) and 48% low income. The map below displays census tracts across the Chicago area with colors representing EPA's Environmental Justice Screening (EJSCREEN) tool's Demographic Index. This index uses the average of two indicators, low-income and minority, and is combined with an environmental indicator to create the associated Environmental Justice Index for each census block group. The yellow, orange and brown colors depict the 80, 90, and 95th percentiles, respectively, for this index.


Chicago City Boundary
Chicago City Boundary
Demographic Index
Less than 50%
50 - 60%
60 - 70%
70 - 80%
80 - 90%
90 - 95%
95 - 100%
Lake
17097
DuPage
17043
Cook
17031
Will
17197
Data Source:
U.S. Census Bureau, American Community Survey, 2014-2018 5-Year Estimates, using
U.S. Environmental Protection Agency (EPA), 2020 EJSCREEN
City of Chicago, Esri Canada, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

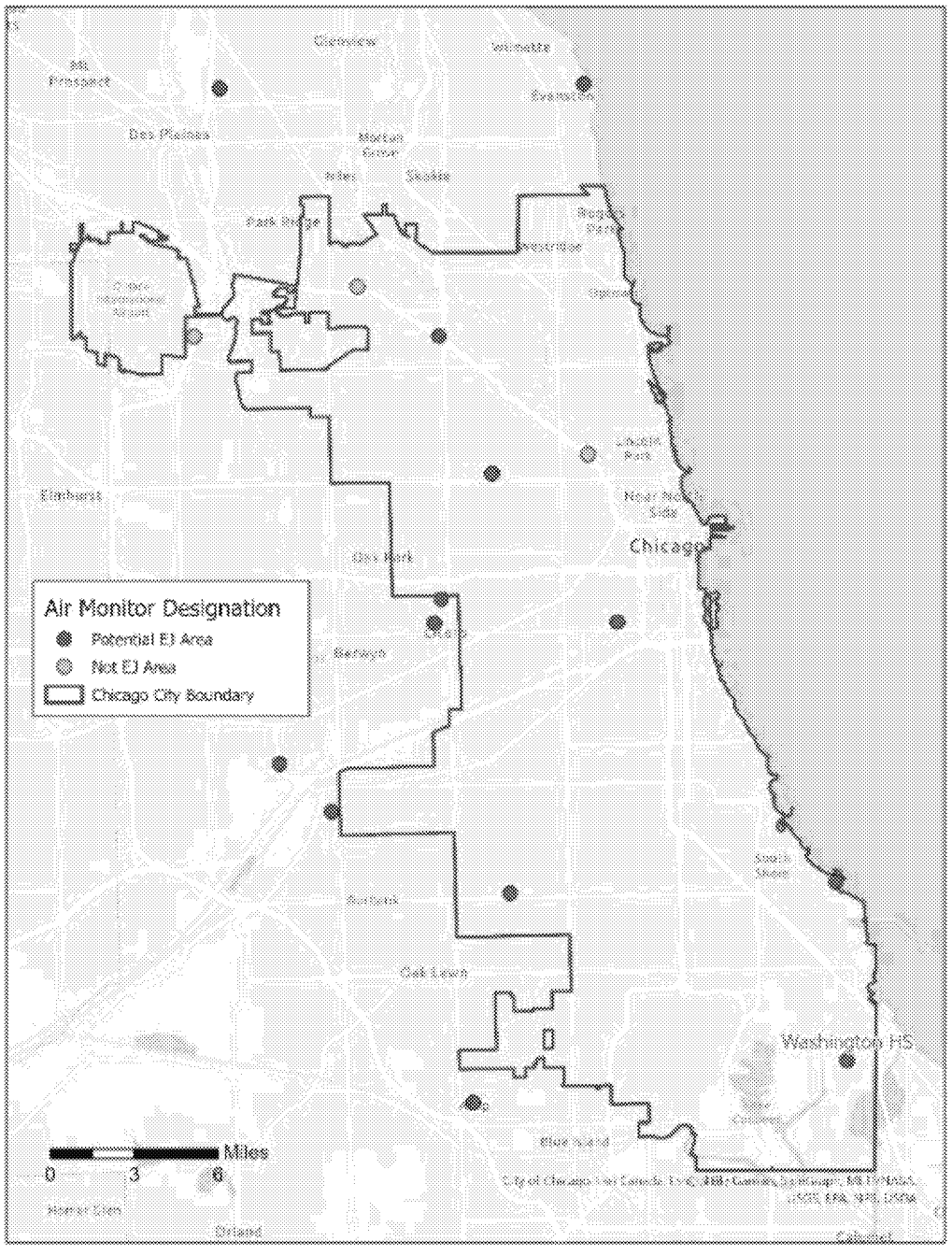

Chicago City Boundary
Chicago City Boundary
Demographic Index
Less than 50%
50 - 60%
60 - 70%
70 - 80%
80 - 90%
90 - 95%
95 - 100%
Lake Michigan
Chicago
Lake Michigan
Washington HS
0
1.5
3
Miles

Air Monitoring Network Overview

The Clean Air Act requires EPA to set [HYPERLINK "https://www.epa.gov/criteria-air-pollutants/naaqs-table"] (NAAQS) for six pollutants, called "criteria" pollutants. These pollutants are common in outdoor air, can be harmful to public health and the environment, and come from numerous and diverse sources. The six criteria pollutants are carbon monoxide (CO), ozone (O_3), lead (Pb), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with a diameter less than or equal to 10 micrometers (PM_{10}), and fine particulate matter (PM2.5). The NAAQS provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly.

To assess compliance with the NAAQS, EPA requires air monitoring. Air monitoring data are used to calculate a design value. A design value is a statistic that describes the air quality status of a given location relative to the level of the NAAQS. With the exception of ozone, the Chicago area is in attainment with all of the NAAQS.

In the Chicago area, the Illinois Environmental Protection Agency (IEPA) and the Cook County Department of Environment and Sustainability (CCDES) operate all non-industrial monitors in the air quality monitoring network. They collect, review, validate the ambient air quality data collected at sites—following EPA's regulations, policies, and guidance—and submit the data to EPA. By July 1 of each year, the State of Illinois must submit its air monitoring plan to EPA for approval. Prior to submitting its plan to EPA, IEPA must post its monitoring plan for public inspection and comment for at least 30 days and the submitted plan must include and address any comments. After EPA's approval, the plan is implemented in the following calendar year. EPA approved the 2021 Illinois Annual Network Plan on October 22, 2020. It meets and exceeds the minimum monitoring network requirements that are described in 40 CFR Part 58.



Types of Air Monitoring Networks

Ambient air monitoring networks are designed to meet three basic monitoring objectives:

- provide air pollution data to the general public in a timely manner;
- support compliance with the NAAQS and emissions strategy development; and
- support air pollution research studies.

To meet these objectives, networks of air quality monitors are designed with a variety of types of sites, and the networks may include monitors located to measure the following:

- highest concentrations expected to occur in the area covered by the network;
- typical concentrations in areas of high population density;
- impacts of significant sources or source categories on air quality;
- general background concentration levels;
- extent of regional pollutant transport among populated areas; and in support of secondary air quality standards; or
- air pollution impacts on visibility, vegetation damage, or other welfare-based impacts.

In addition to each monitoring site having one or more objectives, each site is also characterized to represent a spatial scale. Where the monitors are sited, proximity of nearby emission sources and how homogenous air quality is expected to be impact spatial scale. The goal in locating monitors is to correctly match the spatial scale represented by the sample of monitored air with the spatial scale most appropriate for the monitoring site type, air pollutant to be measured, and the monitoring objective. The scales of representativeness are as follows:

- Microscale - Defines the concentrations in air volumes associated with area dimensions ranging from several meters up to about 100 meters.
- Middle scale - Defines the concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometer.
- Neighborhood scale - Defines concentrations within some extended area of the city that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers range.
- Urban scale - Defines concentrations within an area of city-like dimensions, on the order of 4 to 50 kilometers. Within a city, the geographic placement of sources may result in there being no single site that can be said to represent air quality on an urban scale.
- Regional scale - Defines usually a rural area of reasonably homogeneous geography without large sources, and extends from tens to hundreds of kilometers.

Table 1 describes the network of air monitors in Cook County and the greater Chicagoland area. Rows are shaded to indicate monitors in the network that are located in environmental justice areas, identified using EPA's EJSCREEN tool with one or more primary indicators at or above the 80% level. The monitor located at Washington High School (measures particulate matter $PM_{2.5}$ and PM_{10}, lead, and metals) is located in Southeast Chicago, and South Water Filtration Plant monitor (measures ozone) is located a few miles north of Southeast Chicago. Both of these monitors are bold in the table and graphics below.

Site ID	Site Name	Location	Pollutants (monitoring scale)
17-031-0001	Village Garage	Alsip	Ozone (Urban Scale), $PM_{2.5}$ (Neighborhood)
17-031-0022	**Washington High School**	**Chicago - SE Chicago**	**Lead, TSP Metals, $PM_{2.5}$, PM_{10} (Neighborhood)**
17-031-0032	**South Water Filtration Plant**	**Chicago - South Shore**	**Ozone (Neighborhood)**
17-031-0052	Mayfair Pump Station	Chicago - Albany Park	$PM_{2.5}$ (Neighborhood)
17-031-0057	Springfield Pump Station	Chicago - Humbolt Park	$PM_{2.5}$ (Neighborhood)

17-031-0076	Com Ed Maintenance Bldg	Chicago - Ashburn	NO2, $PM_{2.5}$ (Neighborhood), Ozone, SO_2 (Urban Scale)
17-031-0110	Perez Elementary School	Chicago - Pilsen	Lead, TSP Metals (Middle Scale)
17-031-0119	Kingery Near Road #1	Lansing	CO, NO_2, $PM_{2.5}$ (Microscale)
17-031-0219	Kennedy Near Road 2	Chicago - Wicker Park	NO_2 (Microscale)
17-031-1003	Taft HS	Chicago - Norwood Park	Ozone (Urban Scale)
17-031-1016	Village Hall	McCook	$PM_{2.5}$, PM_{10} (Middle Scale)
17-031-1601	Cook County Trailer	Lemont	Ozone (Urban Scale), SO_2 (Neighborhood)
17-031-3103	IEPA Trailer	Schiller Park	NO_2, $PM_{2.5}$ (Middle Scale), Ozone (Neighborhood)
17-031-3301	Graves ES	Summit	$PM_{2.5}$ (Neighborhood)
17-031-4002	Cook County Trailer	Cicero	NO_2, Ozone (Neighborhood)
17-031-4007	Regional Office Building	Des Plaines	Ozone, $PM_{2.5}$ (Urban Scale)
17-031-4201	Northbrook Water Plant	Northbrook	CO (Neighborhood), Ozone, $PM_{2.5}$, PM_{10}, PM_{10} Metals, SO_2 (Urban Scale)
17-031-6005	Liberty School	Cicero	$PM_{2.5}$ (Neighborhood)
17-031-7002	Evanston Water Plant	Evanston	Ozone (Neighborhood)
17-043-4002	City Hall	Naperville	$PM_{2.5}$ (Urban Scale)
17-043-6001	Morton Arboretum	Lisle	Ozone (Urban Scale)
17-197-1002	Pershing School	Joliet	$PM_{2.5}$ (Neighborhood)
17-197-1011	Com Ed Training Center	Braidwood	Ozone, $PM_{2.5}$ (Regional Scale)

*Table [SEQ Table * ARABIC]: Air monitoring sites in Cook County and the surrounding Greater Chicago area.*

Pollutant Measurements and Trends

Particulate Matter

Limiting [HYPERLINK "https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm"] in the air protects human health and the environment. EPA has set NAAQS for two sizes of particulate matter pollution: coarse particles with diameters that are 10 micrometers and smaller, and fine particulate matter with diameters that are 2.5 micrometers and smaller. Some particulates are emitted directly from sources, such as construction sites, unpaved roads, fields, smokestacks or fires. Most particles form in the atmosphere as a result of complex reactions of chemicals such as sulfur dioxide and nitrogen oxides, which are pollutants emitted from power plants, industries and automobiles.

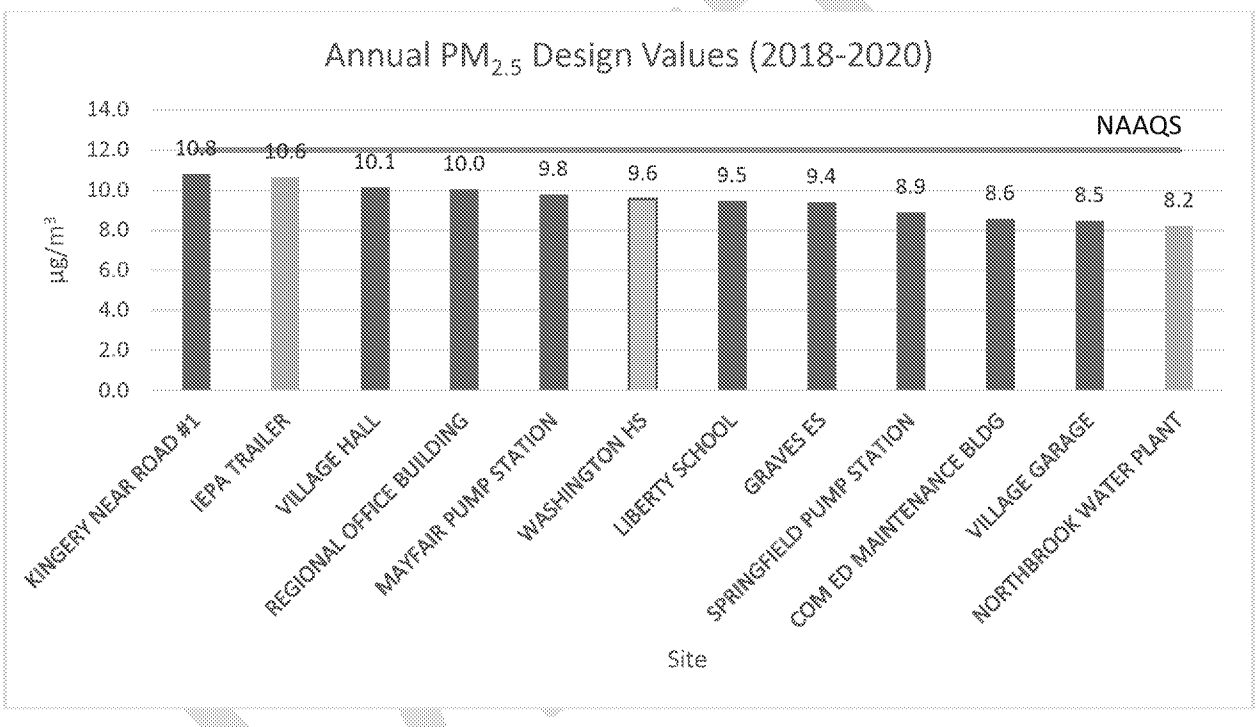
Fine Particulate Matter ($PM_{2.5}$)

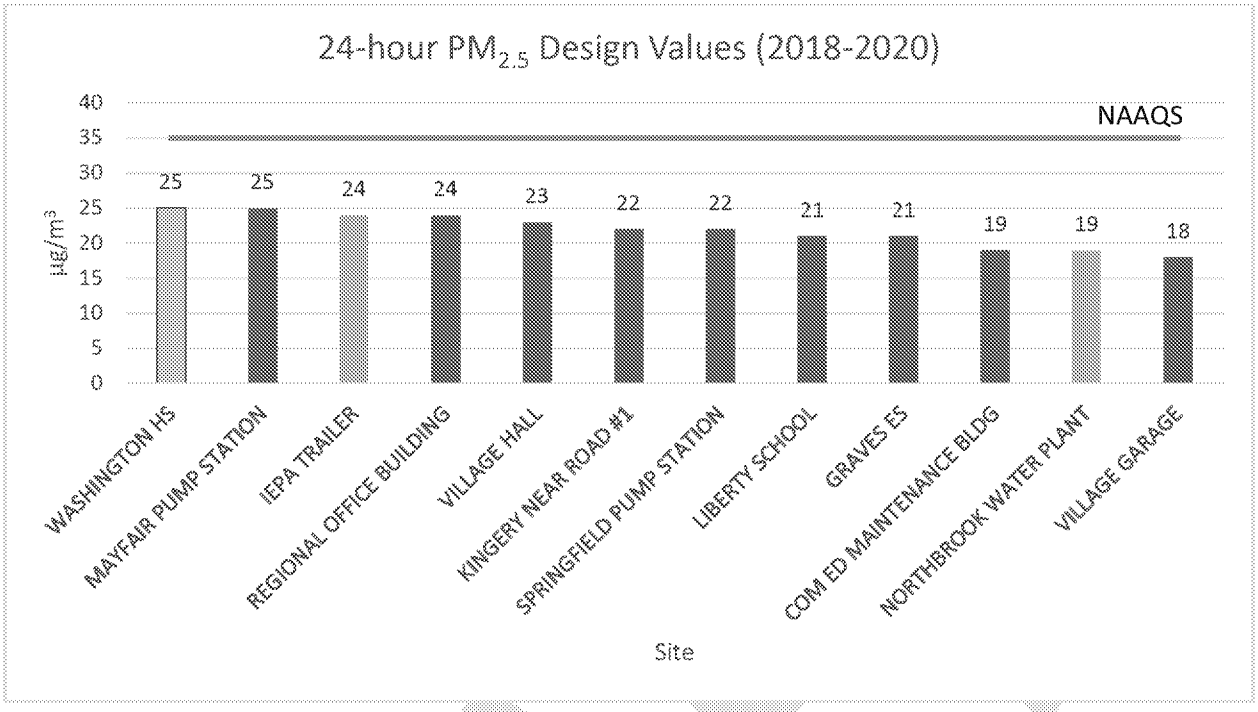
For $PM_{2.5}$, there is a long-term annual NAAQS and a short-term daily NAAQS. The design value for the annual standard is calculated as an annual mean, averaged over three years. The

level is 12 µg/m^3. The design value for the daily standard is calculated as the annual 98th percentile, averaged over three years. The level is 35 µg/m^3.

To better understand how $PM_{2.5}$ concentrations in Southeast Chicago compare to other parts of Chicagoland, the figures below show annual and daily 2018-2020 design values as compared against the respective annual and daily NAAQS. In both figures, the orange line is the level of the NAAQS. The darker bars identify which monitors are located in environmental justice areas.

All monitors in the Chicagoland area are in attainment with the annual and daily $PM_{2.5}$ NAAQS. The most recent annual design values range from 10.80 µg/m^3 to 8.22 µg/m^3. The Washington High School site ranks six of 12 at 9.56 µg/m3. The most recent daily design values range from 25 µg/m^3 to 18 µg/m^3. The Washington High School site is tied for the highest design value with the Mayfield Pumping Station site in Albany Park.

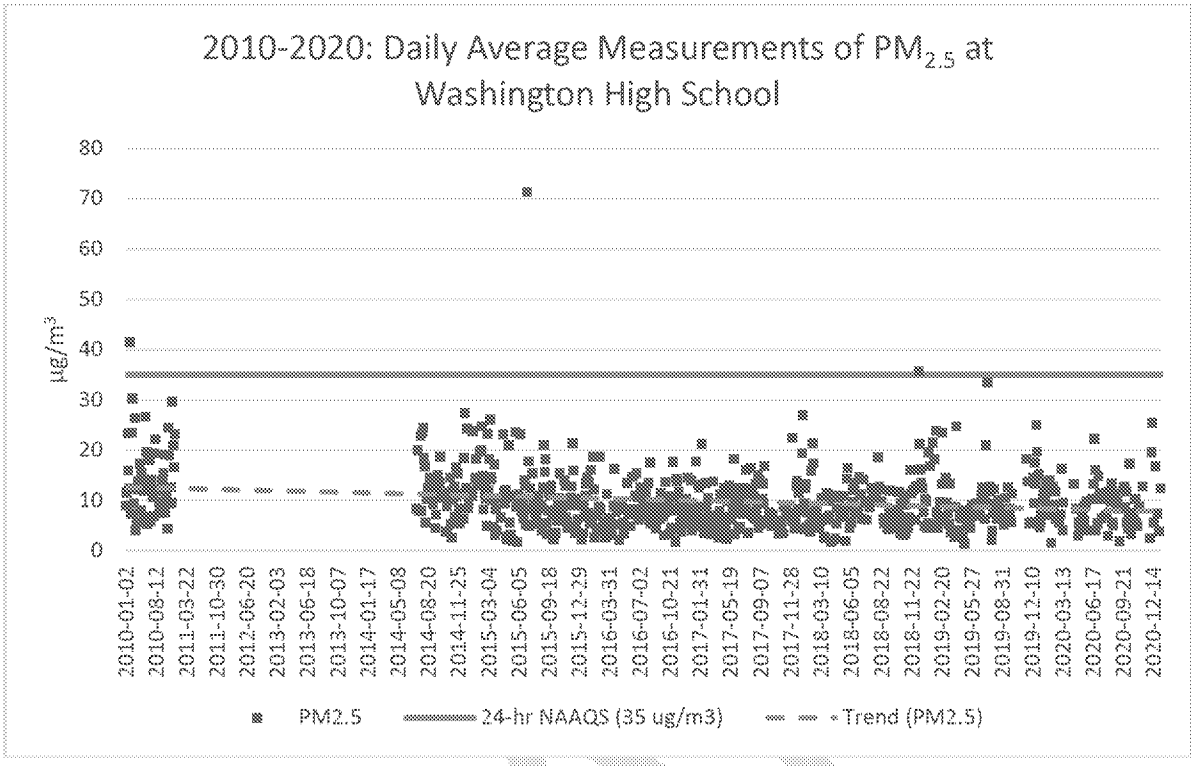




To understand how $PM_{2.5}$ concentrations in Southeast Chicago have changed over time, the graphs below show each $PM_{2.5}$ measurement collected at the Washington High School site. The first graph displays data from the last 10 years (2010-2020), and the second graph focuses on data from the last three years (2018-2020). In both figures, the green line is the level of the daily NAAQS. The orange line is the trend line.

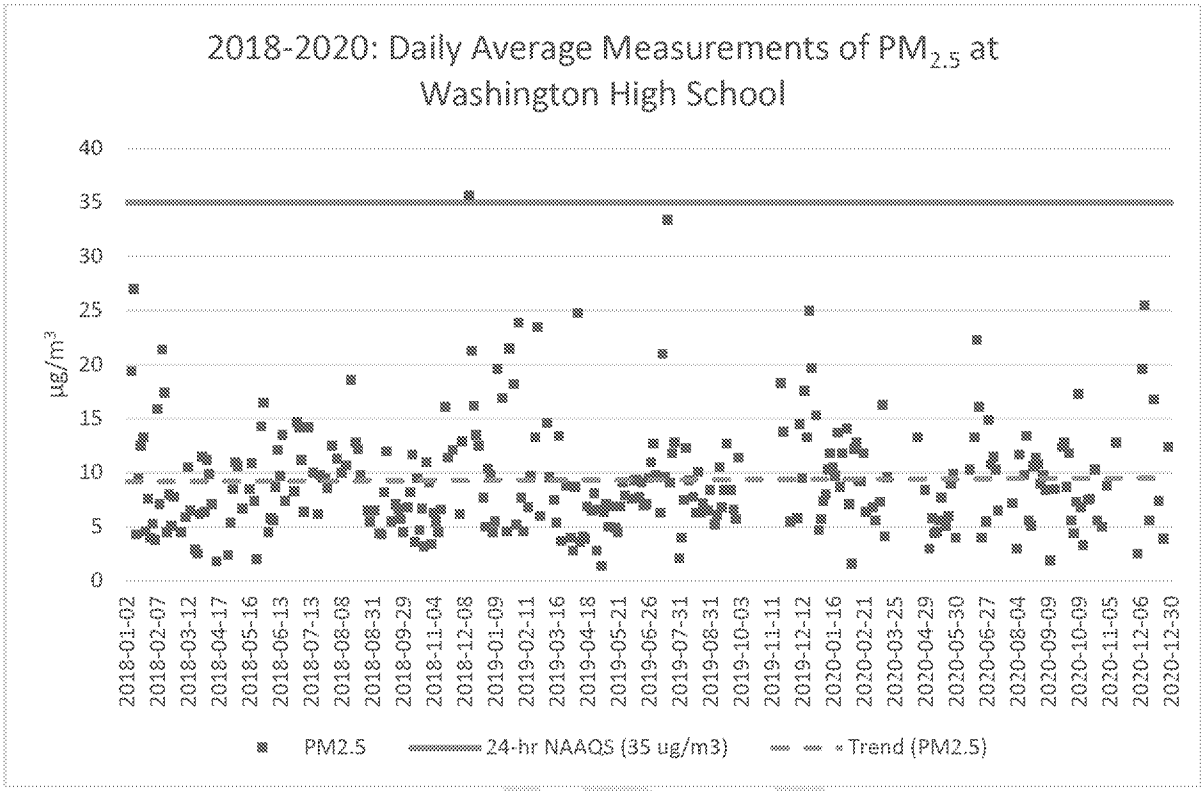
Over the last decade, concentrations of $PM_{2.5}$ have decreased at the Washington High School site, as well as the other $PM_{2.5}$ sites in the Chicagoland area. These decreases are due to additional emission controls of $PM_{2.5}$ and $PM_{2.5}$ precursor emissions by EPA and state agencies, as well as more stringent emission and fuel requirements for vehicles.

Over the last three years, concentrations of $PM_{2.5}$ have remained flat. With two exceptions, on July 5, 2015 and on December 11, 2018, each measurement during this period is below the daily $PM_{2.5}$ NAAQS.



[1]

[1] Several years of $PM_{2.5}$ data were invalidated in 2011-2014 due to laboratory quality assurance issues.

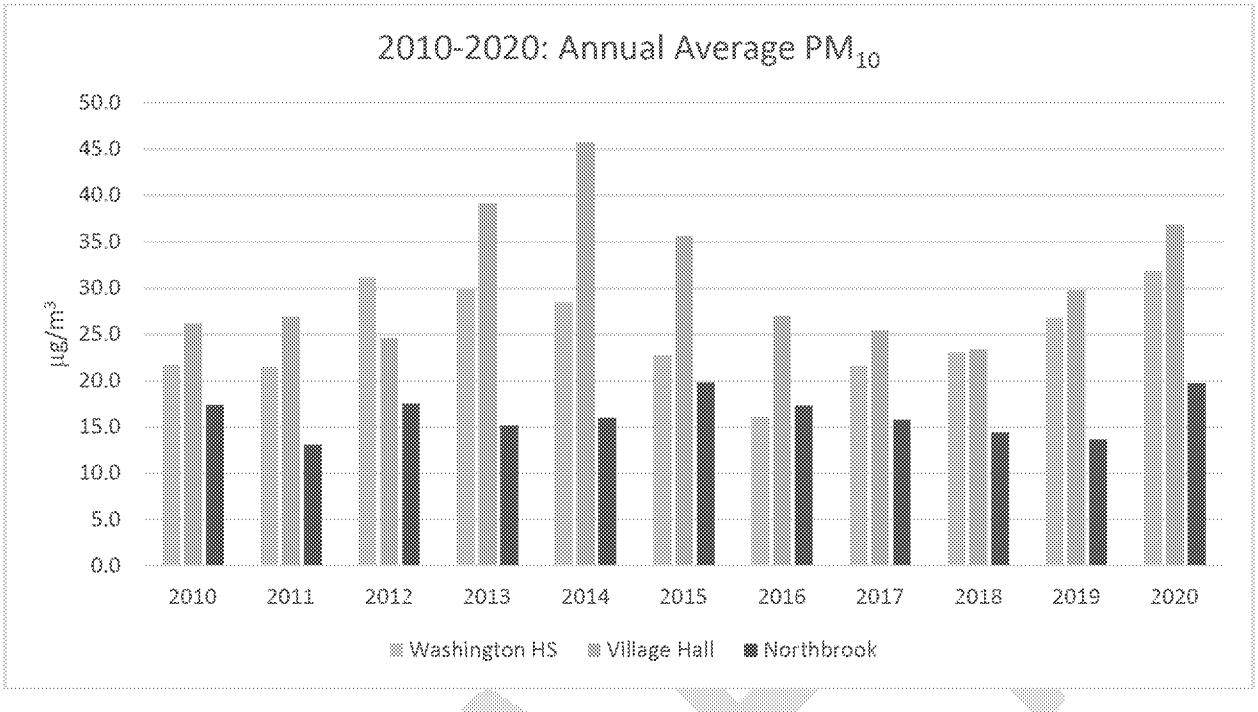


Particulate Matter (PM_{10})

For PM_{10}, the design value is measured by the number of days the standard has been exceeded. It is not to be exceeded more than once per year on average over three years. The level is 150 $\mu g/m^3$.

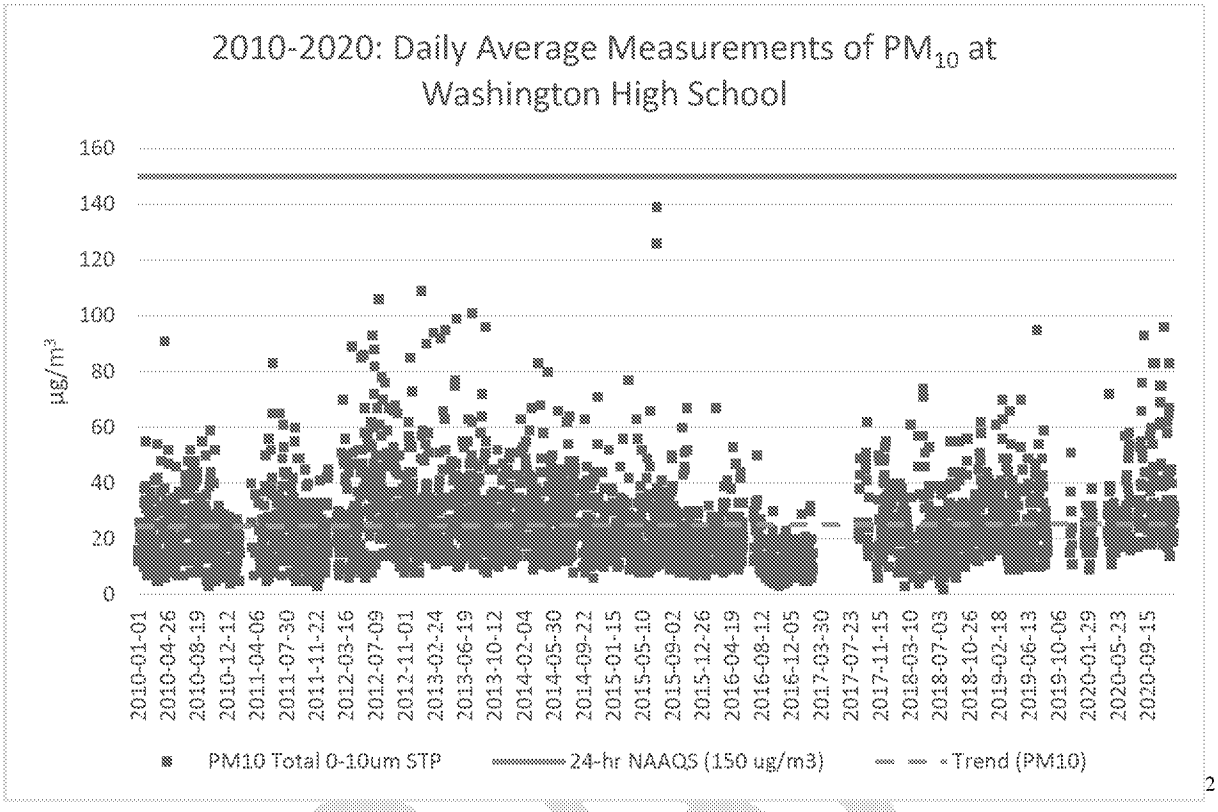
To better understand how PM_{10} concentrations in Southeast Chicago compare to other parts of Chicagoland, we analyzed data from the other two sites that measure PM_{10}—Water Plant in Northbrook and Village Hall in McCook. Of the three sites, the Village Hall site measured the only exceedance of the PM_{10} NAAQS during the last three years.

Although EPA's PM_{10} standard is exceedance based, rather than on an annual average, the graph below shows the annual average PM_{10} concentration at the three PM_{10} monitors operated in Chicago for the last 10 years. As shown, average annual concentrations at the Northbrook monitor are less than concentrations measured at Village Hall and Washington High School. Annual average PM_{10} concentrations have been variable at Washington High School. The lowest annual average PM_{10} concentration was in 2016, and annual concentrations have increased over the last few years. Current annual average PM_{10} concentrations are similar to annual average concentrations observed in 2012 and 2013.



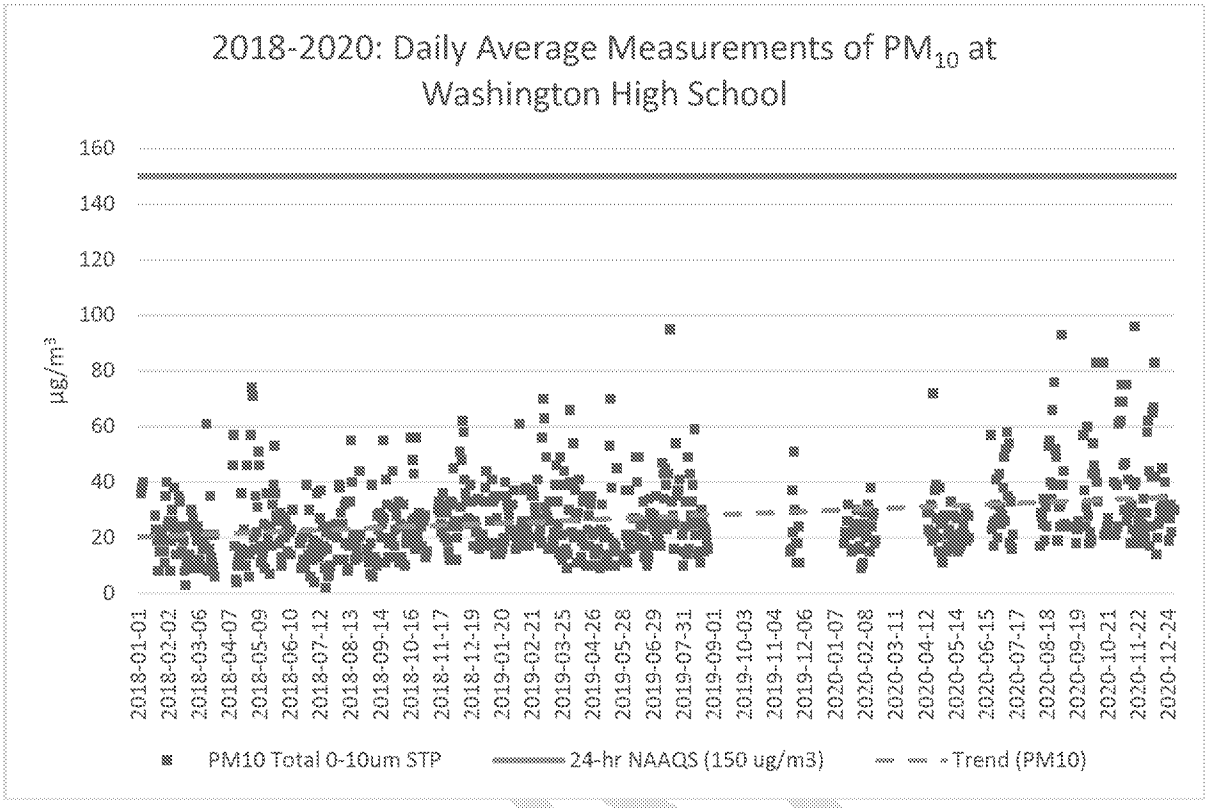
To understand how PM_{10} concentrations in Southeast Chicago have changed over time, the graphs below show each PM_{10} measurement collected at the Washington High School site. The first graph displays data from the last 10 years (2010-2020), and the second graph focuses on data from the last three years (2018-2020). In both figures, the green line is the level of the NAAQS. The orange line is the trend line.

Over the last decade, concentrations of PM_{10} have remained flat at the Washington High School site. Over the last three years, concentrations of PM_{10} have increased. Each measurement during the last 10 years is below the PM_{10} NAAQS. The highest value overall is 139 $\mu g/m^3$, measured on July 5, 2015. The highest value over the last three years is 96 $\mu g/m^3$, measured on November 19, 2020.



[2]

[2] Gaps in the Washington High School PM_{10} data in 2017 and 2019 are due to a series of issues with the air quality monitor.



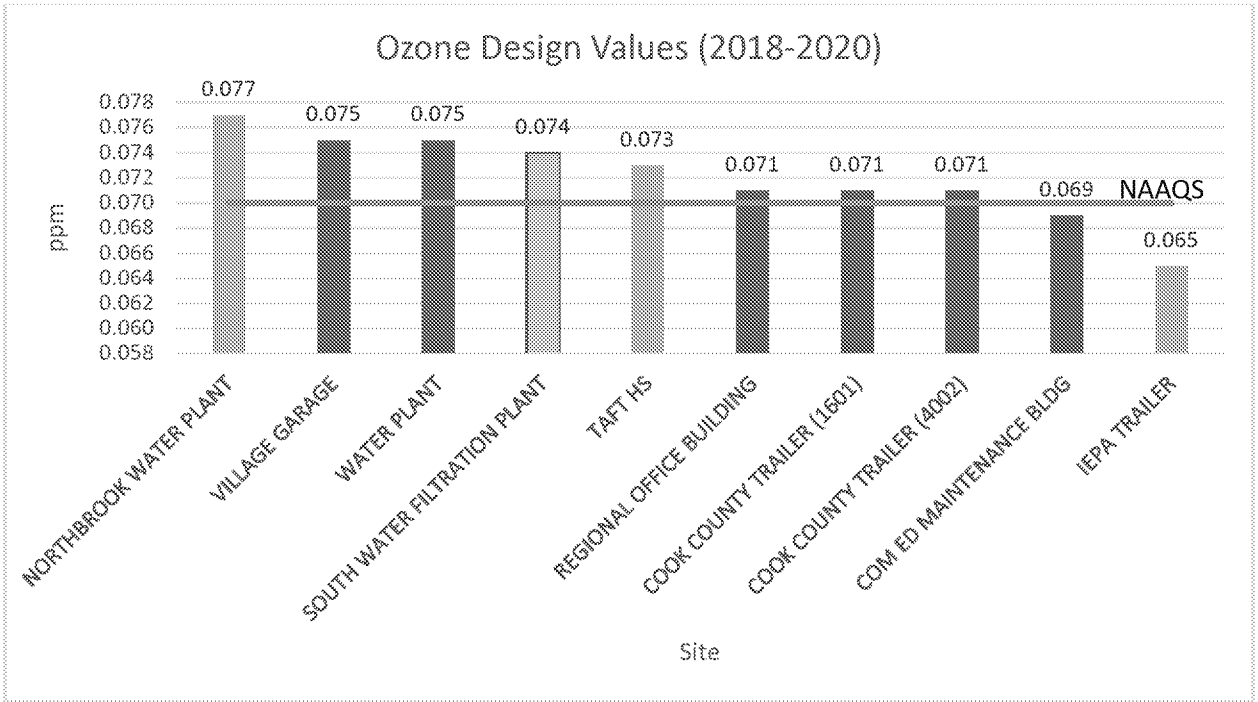
Ozone

Tropospheric, or ground level [HYPERLINK "https://www.epa.gov/ground-level-ozone-pollution"], is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen and volatile organic compound precursors. This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight. Ozone is most likely to reach unhealthy levels on hot sunny days in urban environments. Because this reaction occurs after the emissions of precursors, ozone concentrations are typically the highest in areas that are downwind of urban areas where ozone precursor emissions are produced. Proximity to Lake Michigan also has an effect on ozone concentrations due to unique photochemistry and lake/land breezes that contribute to formation and affect transport of ozone in the Chicago area.

For ozone, the design value is measured as the annual fourth-highest daily maximum 8-hour concentration, averaged over three years. The 2008 level is 75 ppb. The more recent and more protective 2015 level is 70 ppb.

To better understand how ozone concentrations near Southeast Chicago compare to other parts of Chicagoland, the figure below shows the 2018-2020 design values. One ozone monitor remains above the 2008 ozone NAAQS, and most of the ozone monitors are measuring levels above the 2015 revision to the ozone NAAQS. The design values range from 77 to 68 ppb. The highest ozone concentrations are measured at monitoring sites that are further from Chicago's urban core, in places like the Water Plant site in Northbrook and the Village Hall site in Alsip, as well

as monitoring sites that are in close proximity to Lake Michigan, such as the Water Plant site in Evanston and the South Water Filtration Plant site—the closest ozone site to Southeast Chicago. The South Water Filtration Plant site ranks four of 10 at 74 ppb.

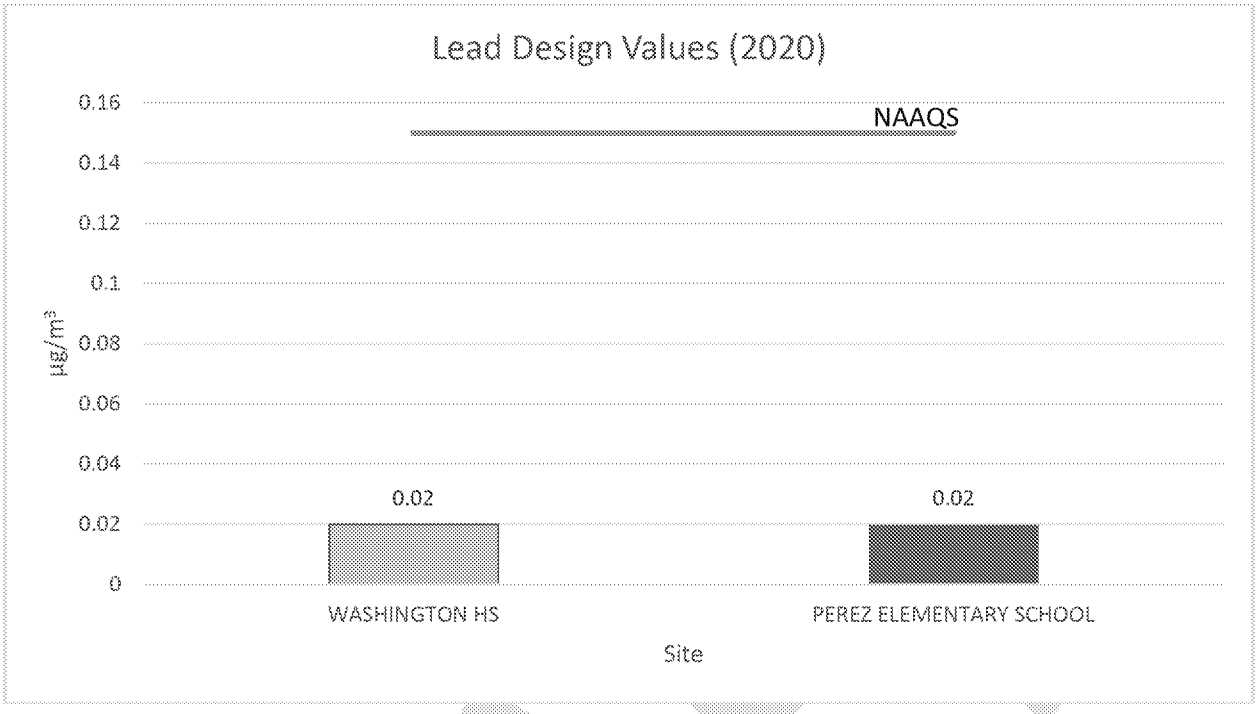


Lead

As a result of EPA's regulatory efforts including the removal of lead from motor vehicle gasoline, levels of [HYPERLINK "https://www.epa.gov/lead-air-pollution"] in the air decreased by 98 percent between 1980 and 2014. As a result, monitoring efforts are generally limited to areas where there are permitted industrial facilities. Industrial operations that may result in lead emissions include ore and metals processing, smelting, waste incineration, and lead-acid battery manufacturing.

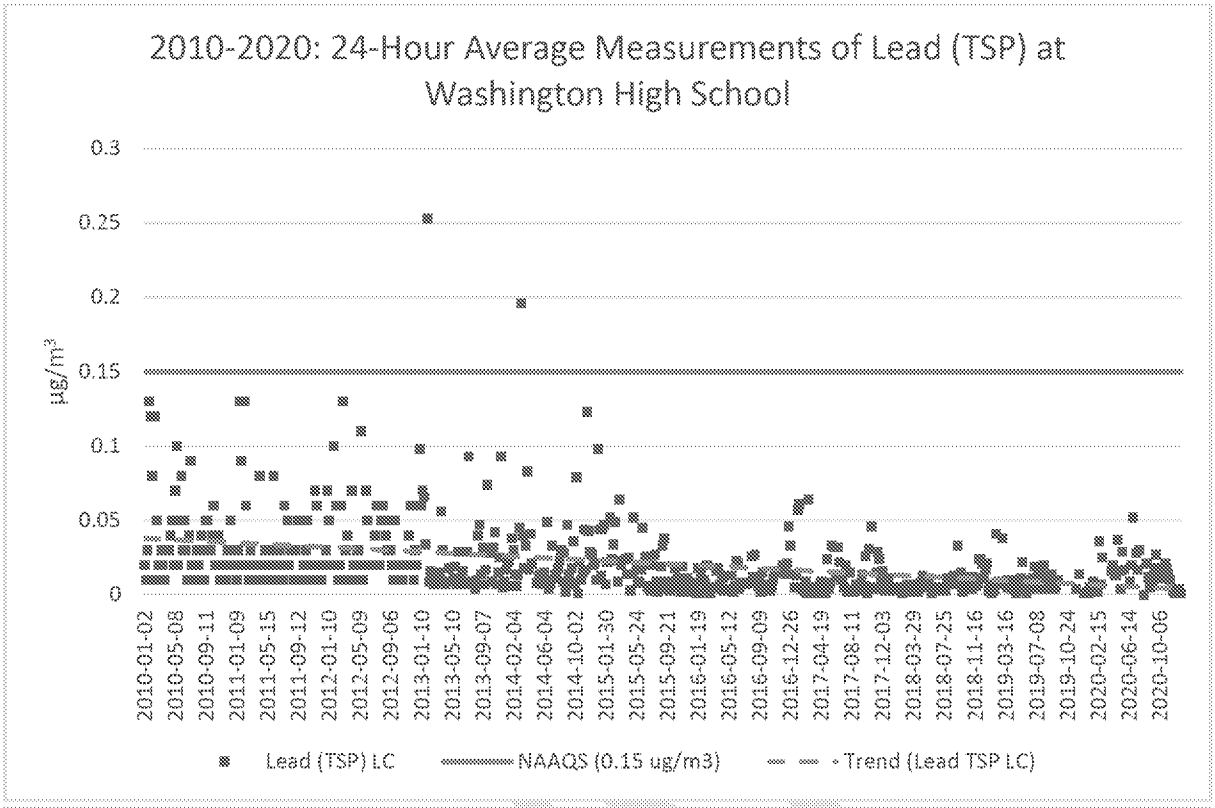
For lead, the design value is measured as the maximum arithmetic 3-month mean concentration for a 3-year period that is not to be exceeded. The level is 0.15 $\mu g/m^3$.

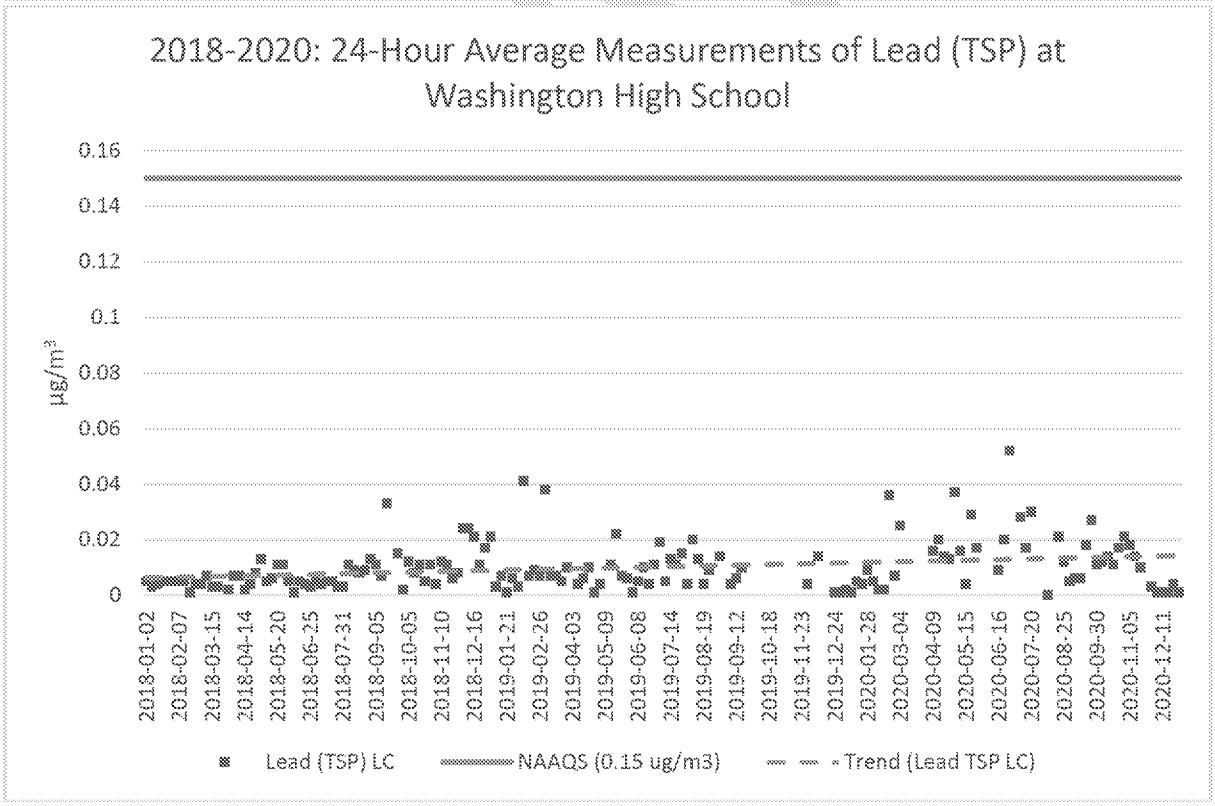
To understand how lead concentrations in Southeast Chicago compare to other parts of Chicagoland, we analyzed data from the one other site that measure lead—the Perez Elementary site in Pilsen. The most recent design value for both sites is 0.02 $\mu g/m^3$.



To understand how lead concentrations in Southeast Chicago have changed over time, the graphs below show each lead measurement collected at the Washington High School site. The first graph displays data from the last 10 years (2010-2020), and the second graph focuses on data from the last three years (2018-2020). In both figures, the green line is the level of the NAAQS. The orange line is the trend line.

Over the last decade, concentrations of lead have decreased at the Washington High School site. Over the last three years, concentrations of lead have remained flat. The highest value overall is 0.196 µg/m^3, measured on March 6, 2014. Each measurement during the last three years is below the lead NAAQS. The highest value during this period is 0.052 µg/m^3, measured on June 26, 2020.


2010-2020: 24-Hour Average Measurements of Lead (TSP) at Washington High School
µg/m³
0.3
0.25
0.2
0.15
0.1
0.05
0
2010-01-02
2010-05-08
2010-09-11
2011-01-09
2011-05-15
2011-09-12
2012-01-10
2012-05-09
2012-09-06
2013-01-10
2013-05-10
2013-09-07
2014-02-04
2014-06-04
2014-10-02
2015-01-30
2015-05-24
2015-09-21
2016-01-19
2016-05-12
2016-09-09
2016-12-26
2017-04-19
2017-08-11
2017-12-03
2018-03-29
2018-07-25
2018-11-16
2019-03-16
2019-07-08
2019-10-24
2020-02-15
2020-06-14
2020-10-06
Lead (TSP) LC
NAAQS (0.15 ug/m3)
Trend (Lead TSP LC)


2018-2020: 24-Hour Average Measurements of Lead (TSP) at Washington High School
µg/m³
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
2018-01-02
2018-02-07
2018-03-15
2018-04-14
2018-05-20
2018-06-25
2018-07-31
2018-09-05
2018-10-05
2018-11-10
2018-12-16
2019-01-21
2019-02-26
2019-04-03
2019-05-09
2019-06-08
2019-07-14
2019-08-19
2019-09-12
2019-10-18
2019-11-23
2019-12-24
2020-01-28
2020-03-04
2020-04-09
2020-05-15
2020-06-16
2020-07-20
2020-08-25
2020-09-30
2020-11-05
2020-12-11
Lead (TSP) LC
NAAQS (0.15 ug/m3)
Trend (Lead TSP LC)

Metals

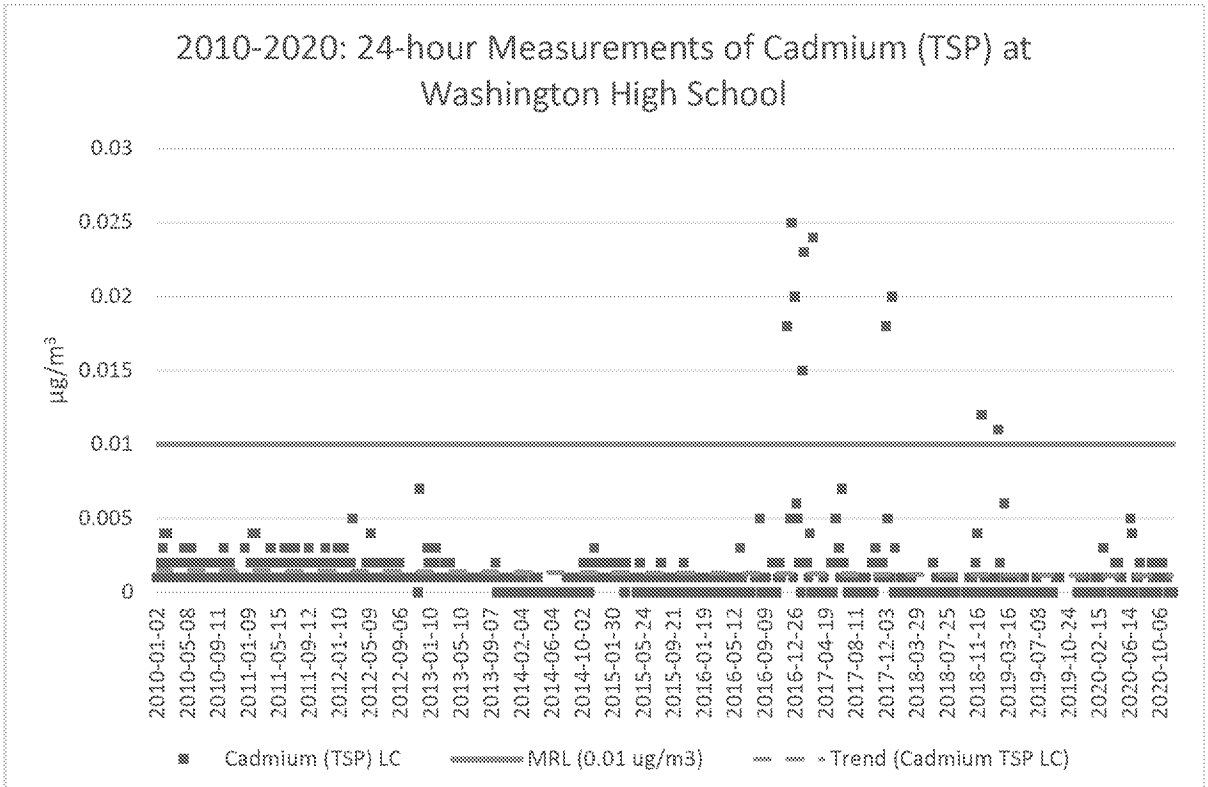
[HYPERLINK "https://www.epa.gov/haps/air-toxics-strategy"] (HAPs) are pollutants that are known or suspected to cause cancer or other serious health impacts. NAAQS have not been set for pollutants in this category. Rather, the Clean Air Act requires EPA to regulate air toxics by setting limits on the amount of pollution that industrial sources can emit to the air. There are no ambient standards—limits on the amount of a pollutant that is allowed in the outdoor air—for HAPs.

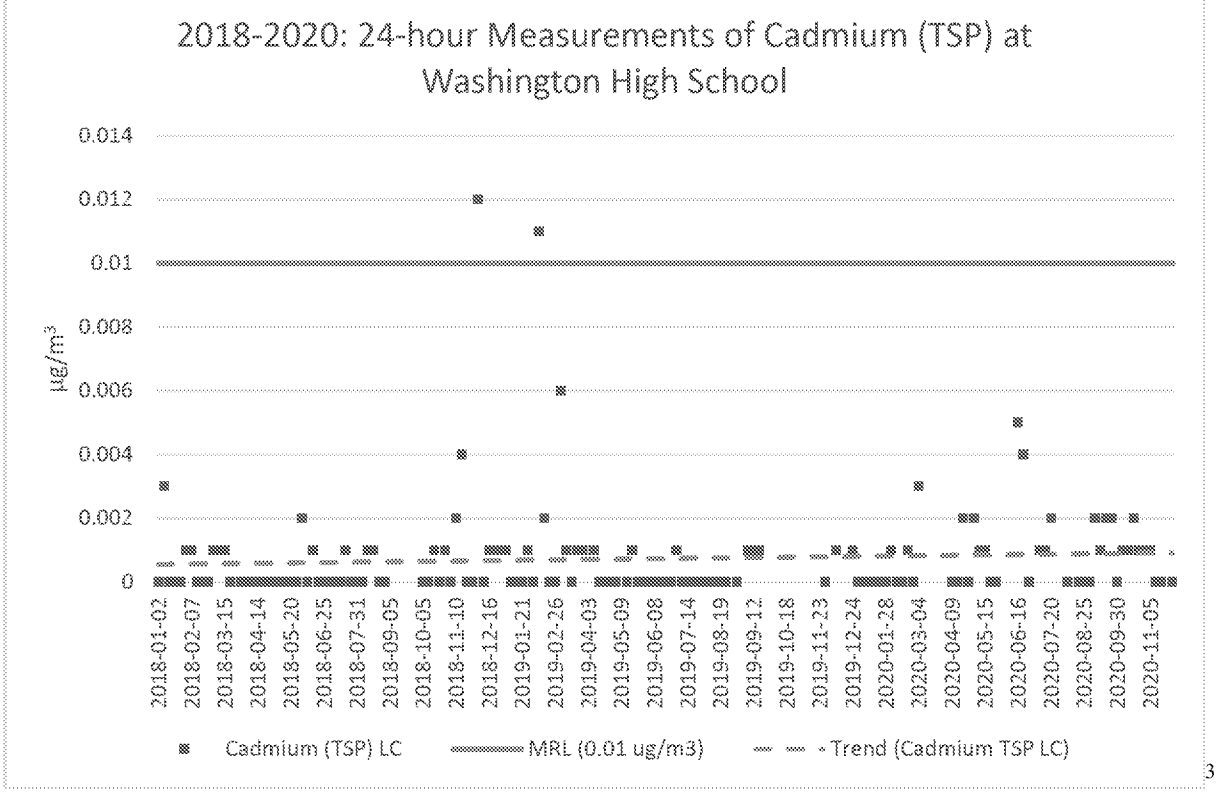
The Washington High School site collects and analyses samples of metals in total suspended particulate (TSP), which are regulated as HAPs. Metals monitored include cadmium, manganese, nickel and chromium. It is difficult to meaningfully compare how concentrations of metals in Southeast Chicago compare to other parts of Chicagoland because there is only one other site that measures TSP metals—the Perez Elementary site in Pilsen.

Instead, this metals analysis has focused on how concentrations of metals in Southeast Chicago have changed at the site over time and how they compare to available health benchmarks, known as Minimal Risk Levels (MRLs). For each metal, the first graph displays data from the last 10 years (2010-2020), and the second graph focuses on data from the last three years (2018-2020). The orange line is the trend line. The green line is the level of the chronic MRL—continuous exposure for more than 364 days at that concentration—for that pollutant.

The U.S. Department of Health and Human Services' Agency for Toxic Substances and Disease Registry (ATSDR) sets MRLs below levels that, based on current science, may cause adverse health effects. Exposure to a level above the MRL does not mean that adverse health effects will occur. MRLs are not standards, like the NAAQS, and, if they are exceeded, it is not a Clean Air Act violation. Rather, MRLs are screening tools that, if measurements are routinely above them, indicate that public health agencies may want to take a closer look. EPA works closely with ATSDR where concentrations exceed MRLs.

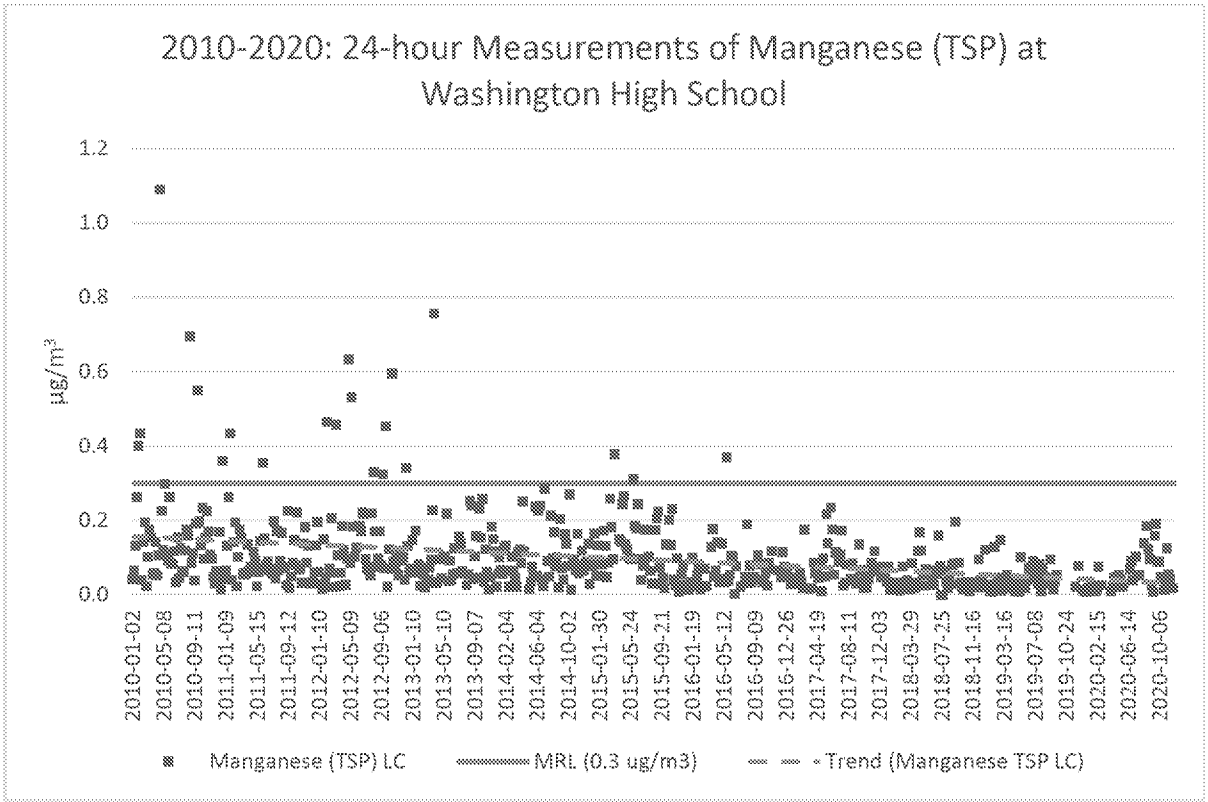
Concentrations of metals have either decreased or remained flat at the Washington High School site during the last decade. Over the last three years, concentrations have remained flat. Each measurement during the last three years is below the chronic MRL for that metal, with the exception of two cadmium observations. They are 0.012 $\mu g/m^3$ on December 4, 2018 and 0.011 $\mu g/m^3$ on February 8, 2019—above the chronic MRL of 0.01 $\mu g/m^3$.

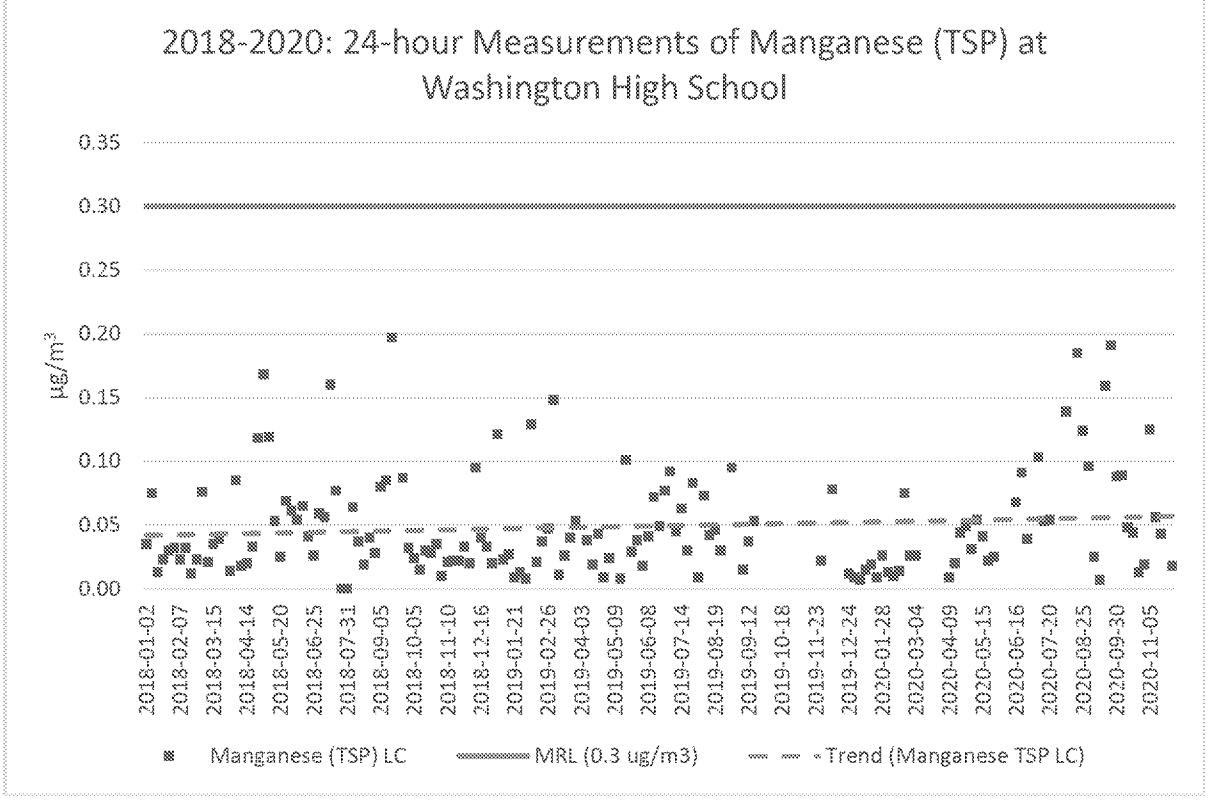


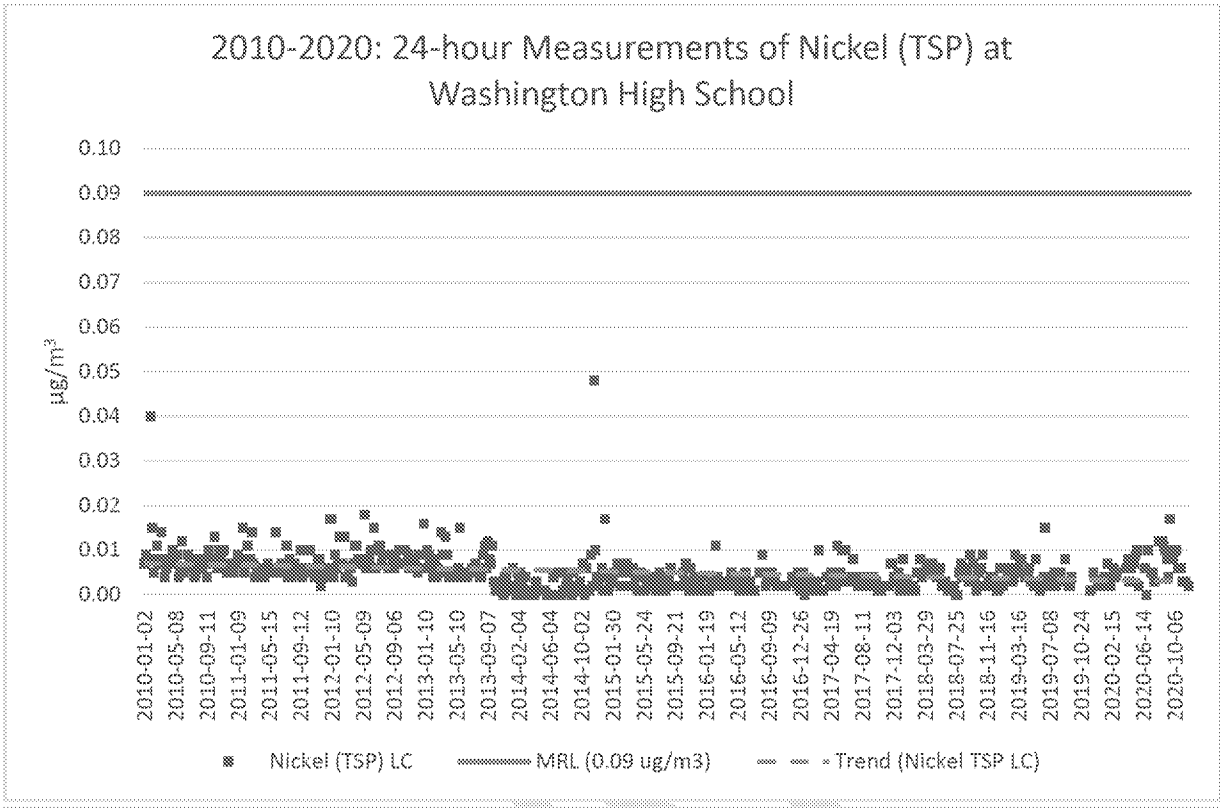


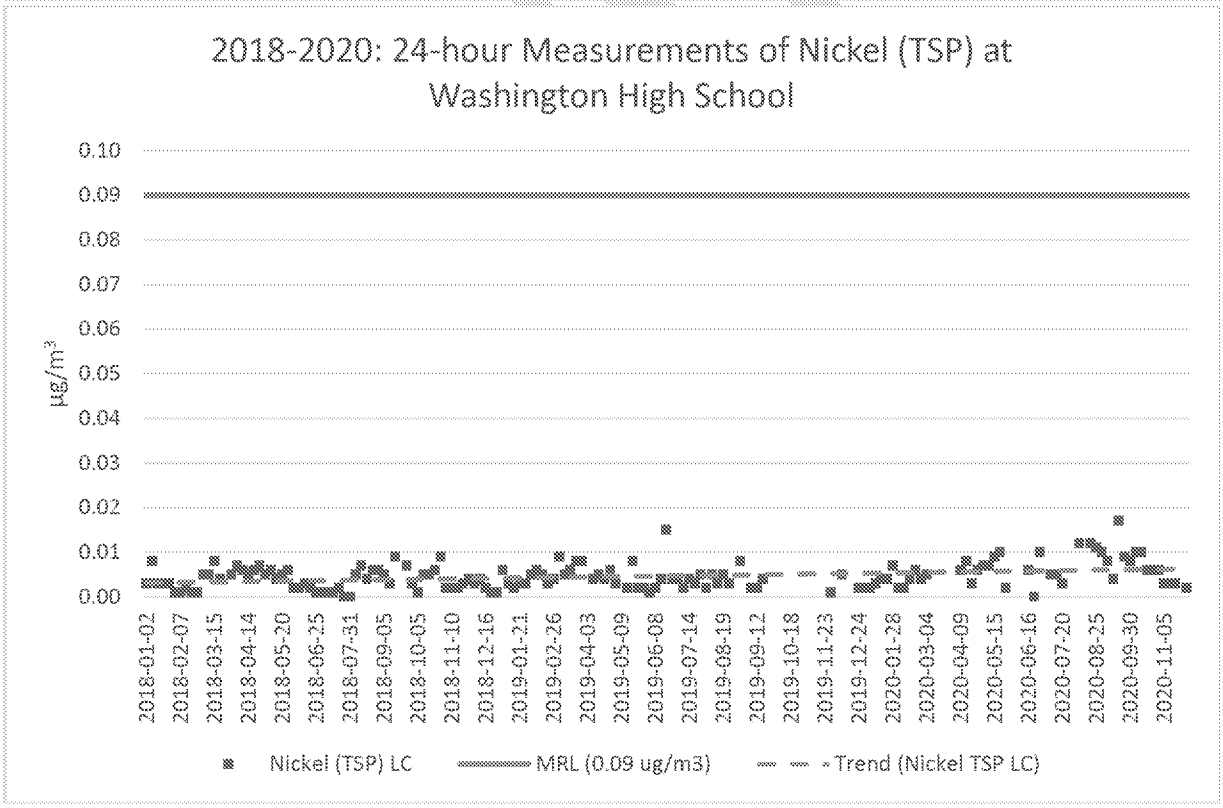
[3]

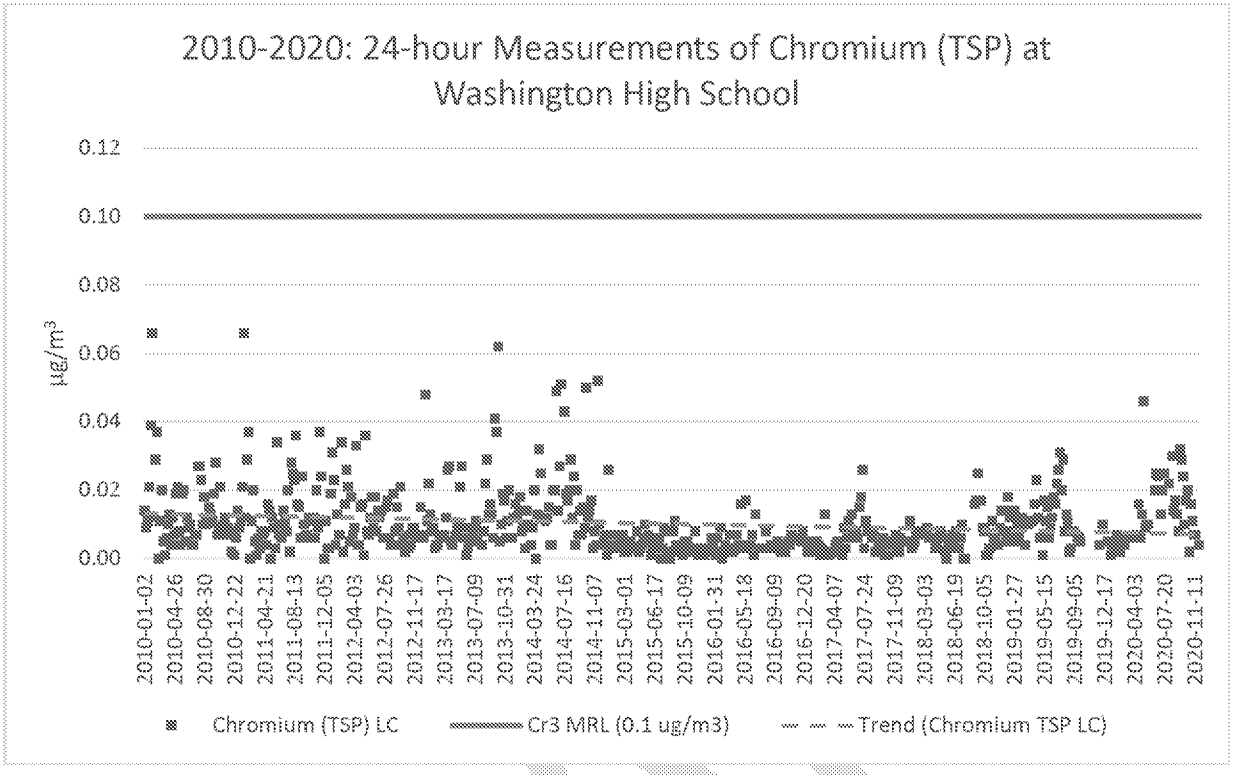
[3] Cadmium data from Washington High School in September 2018 was invalidated due to laboratory issues.

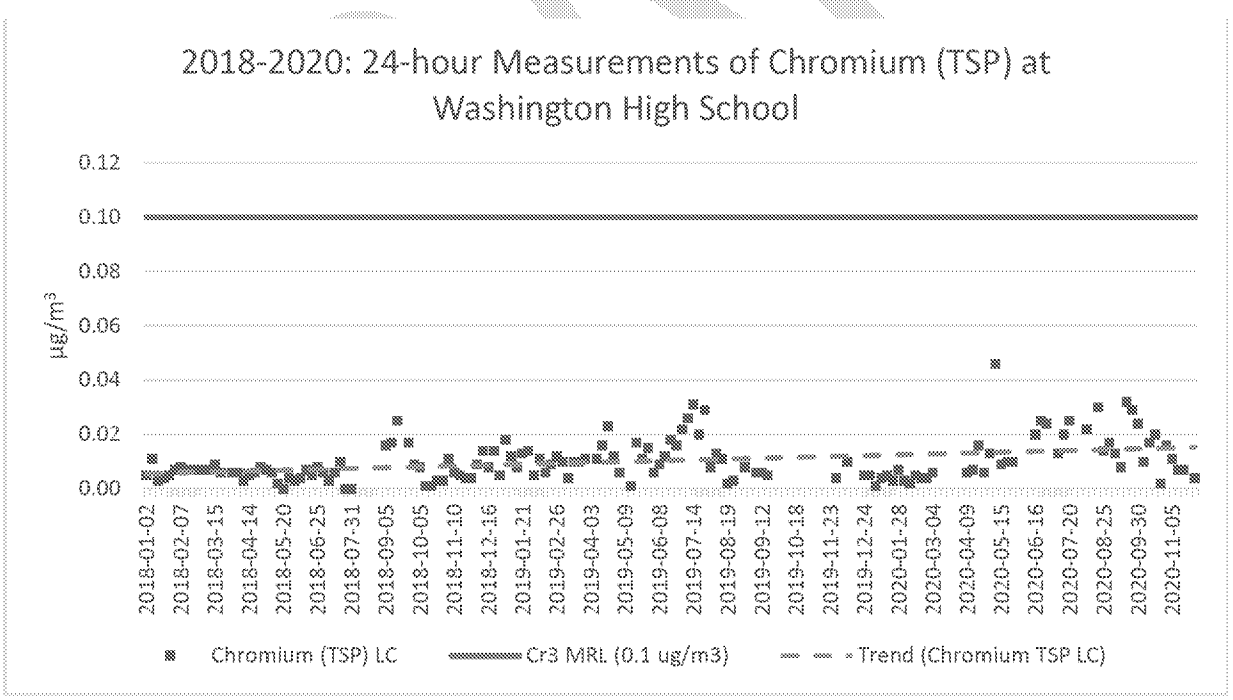

2010-2020: 24-hour Measurements of Manganese (TSP) at Washington High School
µg/m³
1.2
1.0
0.8
0.6
0.4
0.2
0.0
2010-01-02
2010-05-08
2010-09-11
2011-01-09
2011-05-15
2011-09-12
2012-01-10
2012-05-09
2012-09-06
2013-01-10
2013-05-10
2013-09-07
2014-02-04
2014-06-04
2014-10-02
2015-01-30
2015-05-24
2015-09-21
2016-01-19
2016-05-12
2016-09-09
2016-12-26
2017-04-19
2017-08-11
2017-12-03
2018-03-29
2018-07-25
2018-11-16
2019-03-16
2019-07-08
2019-10-24
2020-02-15
2020-06-14
2020-10-06
Manganese (TSP) LC
MRL (0.3 ug/m3)
Trend (Manganese TSP LC)


2018-2020: 24-hour Measurements of Manganese (TSP) at Washington High School
µg/m³
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2018-01-02
2018-02-07
2018-03-15
2018-04-14
2018-05-20
2018-06-25
2018-07-31
2018-09-05
2018-10-05
2018-11-10
2018-12-16
2019-01-21
2019-02-26
2019-04-03
2019-05-09
2019-06-08
2019-07-14
2019-08-19
2019-09-12
2019-10-18
2019-11-23
2019-12-24
2020-01-28
2020-03-04
2020-04-09
2020-05-15
2020-06-16
2020-07-20
2020-08-25
2020-09-30
2020-11-05
Manganese (TSP) LC
MRL (0.3 ug/m3)
Trend (Manganese TSP LC)


2010-2020: 24-hour Measurements of Nickel (TSP) at Washington High School
µg/m³
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
2010-01-02
2010-05-08
2010-09-11
2011-01-09
2011-05-15
2011-09-12
2012-01-10
2012-05-09
2012-09-06
2013-01-10
2013-05-10
2013-09-07
2014-02-04
2014-06-04
2014-10-02
2015-01-30
2015-05-24
2015-09-21
2016-01-19
2016-05-12
2016-09-09
2016-12-26
2017-04-19
2017-08-11
2017-12-03
2018-03-29
2018-07-25
2018-11-16
2019-03-16
2019-07-08
2019-10-24
2020-02-15
2020-06-14
2020-10-06
Nickel (TSP) LC
MRL (0.09 ug/m3)
Trend (Nickel TSP LC)


2018-2020: 24-hour Measurements of Nickel (TSP) at Washington High School
µg/m³
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
2018-01-02
2018-02-07
2018-03-15
2018-04-14
2018-05-20
2018-06-25
2018-07-31
2018-09-05
2018-10-05
2018-11-10
2018-12-16
2019-01-21
2019-02-26
2019-04-03
2019-05-09
2019-06-08
2019-07-14
2019-08-19
2019-09-12
2019-10-18
2019-11-23
2019-12-24
2020-01-28
2020-03-04
2020-04-09
2020-05-15
2020-06-16
2020-07-20
2020-08-25
2020-09-30
2020-11-05
Nickel (TSP) LC
MRL (0.09 ug/m3)
Trend (Nickel TSP LC)


2010-2020: 24-hour Measurements of Chromium (TSP) at Washington High School
µg/m³
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2010-01-02
2010-04-26
2010-08-30
2010-12-22
2011-04-21
2011-08-13
2011-12-05
2012-04-03
2012-07-26
2012-11-17
2013-03-17
2013-07-09
2013-10-31
2014-03-24
2014-07-16
2014-11-07
2015-03-01
2015-06-17
2015-10-09
2016-01-31
2016-05-18
2016-09-09
2016-12-20
2017-04-07
2017-07-24
2017-11-09
2018-03-03
2018-06-19
2018-10-05
2019-01-27
2019-05-15
2019-09-05
2019-12-17
2020-04-03
2020-07-20
2020-11-11
Chromium (TSP) LC
Cr3 MRL (0.1 ug/m3)
Trend (Chromium TSP LC)


2018-2020: 24-hour Measurements of Chromium (TSP) at Washington High School
µg/m³
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2018-01-02
2018-02-07
2018-03-15
2018-04-14
2018-05-20
2018-06-25
2018-07-31
2018-09-05
2018-10-05
2018-11-10
2018-12-16
2019-01-21
2019-02-26
2019-04-03
2019-05-09
2019-06-08
2019-07-14
2019-08-19
2019-09-12
2019-10-18
2019-11-23
2019-12-24
2020-01-28
2020-03-04
2020-04-09
2020-05-15
2020-06-16
2020-07-20
2020-08-25
2020-09-30
2020-11-05
Chromium (TSP) LC
Cr3 MRL (0.1 ug/m3)
Trend (Chromium TSP LC)